

Tuberculosis Surveillance Report

Arizona, 2003

**Arizona Department of Health Services
Bureau of Epidemiology and Disease Control
Office of Infectious Disease Services
April 2004**

**Tuberculosis Control Program
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EXECUTIVE SUMMARY

There were 295 cases of active tuberculosis (TB) reported in Arizona in 2003, making Arizona number 11 among all of the states for TB morbidity, an increase from 2002 when Arizona ranked number 18 in the U.S. for the number of cases reported. While the U.S. has seen a 44.2% decrease in the number of TB cases since the peak of the resurgence in 1992, this trend is not apparent in Arizona (Table 1). Instead, Arizona experienced a 13.9% increase in the number of TB cases from 1992 to 2003. However, due to population growth statewide, TB case rates in Arizona declined 22.4% from 6.7 cases/100,000 in 1992 to 5.2 cases/100,000 in 2003 (Figure 1).

The increase in Arizona TB cases from 263 cases in 2002 to 295 cases in 2003 is most likely attributable to an increase in cases among two distinct groups; prisoners, primarily Immigration and Customs Enforcement (ICE) detainees (72% of AZ correctional cases in 2003) and children less than five years. The number of correctional TB cases in 2003 (n=39) is more than double the number of correctional cases in 2002 (n=19) and much higher than the 23 correctional cases reported in 1997, the second highest year for correctional TB cases. The number of TB cases in children under five years was 3.2 times higher in 2003 than 2002 (C.I. 1.5 - 6.9), an increase from 9 cases in 2002 to 30 cases in 2003. The overwhelming majority of these pediatric cases occurred in Maricopa County (97%).

The majority of TB cases (54%) in Arizona in 2003 occurred in working age adults (25-64 years) with a mean age of 41.3 years and median age of 40 years, with males accounting for 64% of all cases (n=188). The breakdown by race/ethnicity is 60% Hispanic, 21% White, non-Hispanic, 10% Asian, 5% Native American, and 4% Black, non-Hispanic. The TB case rate for Hispanics is 12.4 cases per 100,000, more than double the rate for all races in Arizona, additionally, 77% of pediatric (<5 years) TB cases in 2003 occurred among Hispanics (Table 2 and Figure 3). The occurrence of TB in young children represents ongoing transmission in the community and is an indicator of efficacy of TB program activities.

Total resistance to the anti-TB drug isoniazid (INH) was 6.2% in 2003. Persons resistant to at least INH and RIF (multi-drug resistant) accounted for only 0.9% of Arizona TB cases in 2003. All multi-drug resistant TB cases in the past five years in Arizona have been foreign-born (Table 4). Foreign-born persons accounted for 58% of Arizona TB cases in 2003 with Mexico listed as the country of birth for 68% of foreign-born cases and 40% of all Arizona cases. Asia contributed 16% of foreign-born cases, Central and South America contributed 9% of foreign-born cases, the Middle East (includes Sudan) contributed 4% of foreign-born cases and Africa and Europe each contributed 2% of foreign-born cases (Figure 4 and Figure 5). Other important risk factors identified among Arizona TB cases in 2003 are, excess alcohol use (18.6%), residence in a correctional facility (13.2%), homelessness within the past year (11.9%), non-injecting drug use (7.8%), and HIV coinfection (5.4%). Among persons in the 25-44 year age group, 13.5% of TB cases were coinfecting with HIV (Table 5). Maricopa County accounted for 66% (n=195) of 2003 TB cases; other high morbidity counties include Pinal 10% (n=30) and Yuma 8% (n=25) and Pima 8% (n=24). Pinal County had the highest case rate in 2003 (14.9 cases/100,000), followed by La Paz County (14.5 cases/100,000), Yuma County (14.3 cases/100,000) and Gila County (7.5 cases/100,000) (Figure 6).

Table 1. Tuberculosis Cases and Case Rates per 100,000 Population, Arizona and United States, 1992 - 2003

Year ^b	Arizona			United States ^a	
	Cases	Population ^c	Rate	Cases	Rate
1992	259	3,858,825	6.7	26,673	10.5
1993	231	3,946,975	5.9	25,287	9.8
1994	249	4,036,875	6.2	24,361	9.4
1995	319	4,184,723	7.6	22,860	8.7
1996	282	4,462,717	6.3	21,337	8.0
1997	296	4,595,379	6.4	19,851	7.4
1998	254	4,722,097	5.4	18,361	6.8
1999	262	4,924,350	5.3	17,531	6.4
2000	261	5,130,632	5.1	16,377	5.8
2001	289	5,307,331	5.4	15,989	5.6
2002	263	5,472,750	4.8	15,078	5.2
2003	295	5,629,870	5.2	14,871	5.1

^aData from U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, available at: www.cdc.gov/nchstp/tb/

^bYear reported reflects the year case was verified by Arizona Department of Health Services.

^cPopulation denominators for 2001 through 2003 are estimates from the Arizona Department of Economic Security (<http://www.workforce.az.gov/?PAGEID=67&SUBID=137>). Year 2000 denominators are from the 2000 U.S. Census. Population projections from Arizona Department of Economic Security are used for years prior to 2000.

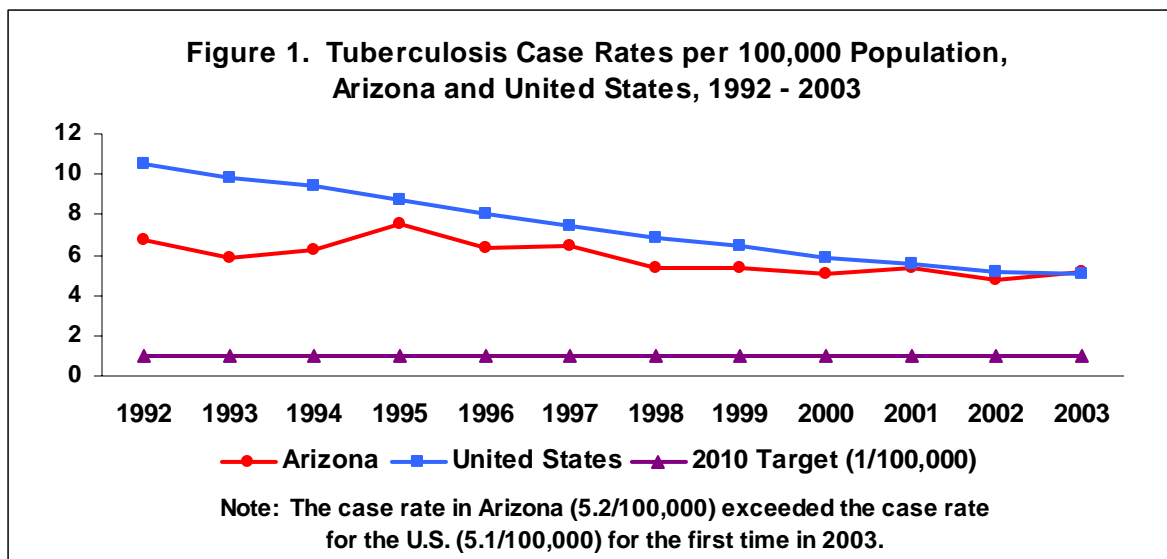


Figure 2. Number of Tuberculosis Cases by Age in Years and Gender, Arizona, 2003

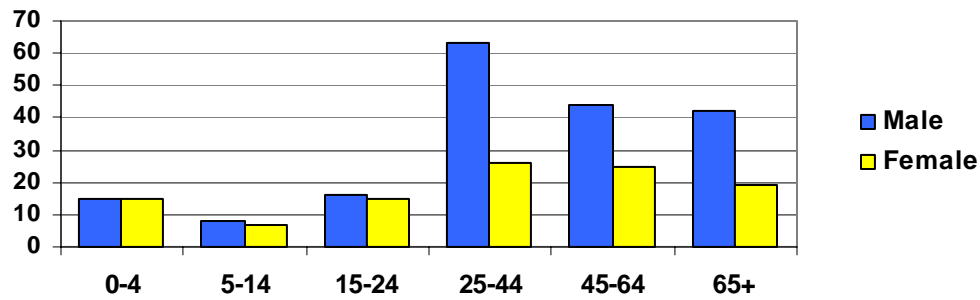


Table 2. Tuberculosis Cases by Ethnicity, Gender and Age Group, Arizona, 2003

	Age Group						Total by Ethnicity		
	< 5	5-14	15-24	25-44	45-64	65+	No.	(%)	Rate ^{a,b}
Asian ^c									
Male	2	0	0	3	5	4	14		
Female	1	1	1	6	5	1	15		
Total	3	1	1	9	10	5	29	(9.8)	24.5
Black, Not Hispanic									
Male	0	1	0	1	2	1	5		
Female	0	0	1	3	2	1	7		
Total	0	1	1	4	4	2	12	(4.1)	6.5
Hispanic or Latino ^d									
Male	12	6	15	49	15	19	116		
Female	11	4	11	15	13	7	61		
Total	23	10	26	64	28	26	177	(60.0)	12.4
Native American ^e									
Male	0	0	0	2	3	5	10		
Female	0	0	0	0	2	3	5		
Total	0	0	0	2	5	8	15	(5.1)	5.1
White, Not Hispanic									
Male	1	1	1	7	19	13	42		
Female	3	2	2	2	3	7	19		
Total	4	3	3	9	22	20	61	(20.7)	1.7
More than one race									
Male	0	0	0	1	0	0	1		
Female	0	0	0	0	0	0	0		
Total	0	0	0	1	0	0	1	(0.3)	N/A
Total by Gender									
Male	15	8	16	63	44	42	188	(63.7)	6.7
Female	15	7	15	26	25	19	107	(36.3)	3.8
Total by Age Group									
No.	30	15	31	89	69	61	295		
(%)	(10.2)	(5.1)	(10.5)	(30.2)	(23.4)	(20.7)		(100.0)	
Rate ^{a,b}	7.1	1.8	3.9	5.4	5.9	8.3			5.2

^aRate per 100,000 population

^bPopulation denominators for 2003 are estimates from the Arizona Department of Economic Security

^cDoes not include Native Hawaiians and other Pacific Islanders

^dPersons of Hispanic or Latino origin may be either Black or White

^eIncludes American Indians and Native Alaskans

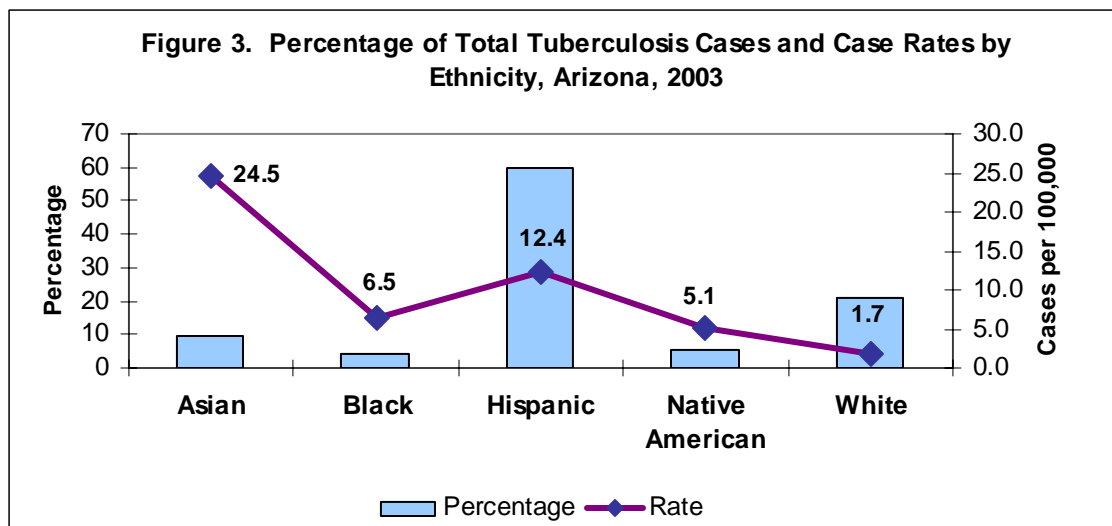


Table 3. Tuberculosis Cases by Form of Disease and Vital Status at Diagnosis, Arizona, 2003

Form of Disease	Alive at Diagnosis		Diagnosis After Death		Unknown		Total Cases	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Pulmonary ^a	222		6		0		228	(77.3)
Extrapulmonary ^b	41		2		1		44	(14.9)
Persons with Both Pulmonary and Extrapulmonary Disease ^c	22		1		0		23	(7.8)
Total (%)	285	(96.6)	9	(3.1)	1	(0.3)	295	(100.0)

^aIncludes cases with pulmonary listed as major site of disease and no additional site of disease.

^bIncludes cases with pleural, lymphatic, bone and/or joint, meningeal, peritoneal, or other site, excluding pulmonary, listed as the major site of disease.

^cIncludes military cases.

Table 4. Drug Resistance Among U.S.-born and Foreign-born Tuberculosis Cases, Arizona, 1999 - 2003

Year	INH Resistance ^{a,b}					Multi-Drug Resistant ^{a,c}					Other Drug Resistance ^{a,d}				
	U.S.-born		Foreign-born		Total ^e	U.S.-born		Foreign-born		Total ^e	U.S.-born		Foreign-born		Total ^e
	No.	(%)	No.	(%)		No.	(%)	No.	(%)		No.	(%)	No.	(%)	
1999	2	(1.5)	4	(4.3)	6 (2.7)	0	(0.0)	2	(2.2)	2 (0.9)	18	(13.6)	9	(9.7)	27 (12.0)
2000	2	(2.1)	13	(10.5)	15 (6.8)	0	(0.0)	2	(1.6)	2 (0.9)	10	(10.4)	9	(7.3)	19 (8.6)
2001	4	(3.3)	5	(4.9)	9 (4.0)	0	(0.0)	3	(2.9)	3 (1.3)	8	(6.6)	10	(9.7)	18 (8.0)
2002	1	(1.0)	9	(8.0)	10 (4.8)	0	(0.0)	1	(0.9)	1 (0.5)	8	(8.2)	16	(14.3)	24 (11.5)
2003	4	(4.7)	8	(5.8)	12 (5.3)	0	(0.0)	2	(1.4)	2 (0.9)	8	(9.3)	7	(5.0)	15 (6.6)

^aMore than 95% of isolates had susceptibility testing performed.

^bResistance to at least isoniazid without rifampin resistance.

^cResistance to at least isoniazid and rifampin (multi-drug resistance).

^dOther drug resistance without isoniazid resistance.

^eIncludes persons of unknown country of birth.

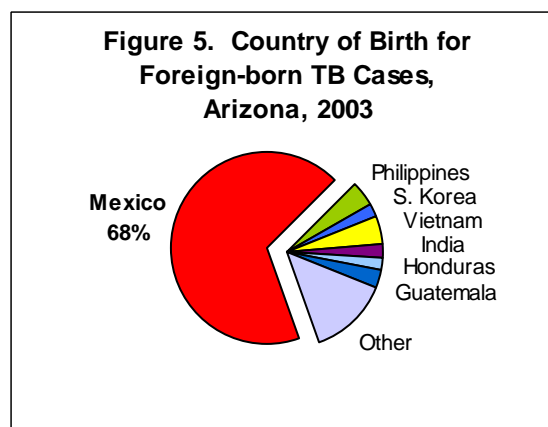
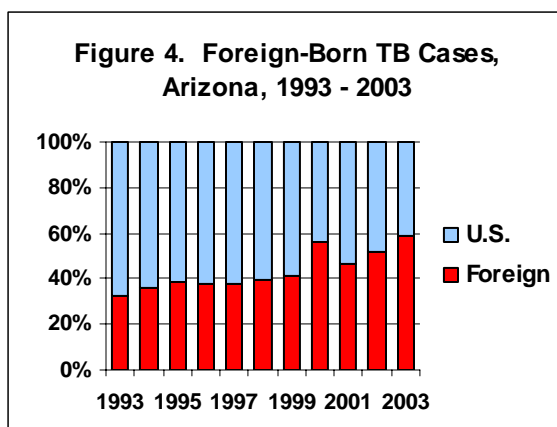


Table 5. Tuberculosis Cases by Selected Risk Factors, Arizona, 1999 - 2003

	1999		2000		2001		2002		2003	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Occupation										
Correctional Facility Worker	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Health Care Worker	1	(0.4)	6	(2.3)	5	(1.7)	3	(1.1)	3	(1.0)
Migrant Farm Worker	6	(2.3)	9	(3.4)	6	(2.1)	8	(3.0)	4	(1.4)
Reported Behaviors										
Injecting Drug Use ^a	10	(3.8)	11	(4.2)	11	(3.8)	10	(3.8)	5	(1.7)
Non-injecting Drug Use ^a	20	(7.6)	20	(7.7)	22	(7.6)	27	(10.3)	23	(7.8)
Excess Alcohol Use ^a	55	(21.0)	46	(17.6)	61	(21.1)	41	(15.6)	55	(18.6)
Type of Residence										
Long Term Care Facility ^b	7	(2.7)	7	(2.7)	12	(4.2)	7	(2.7)	5	(1.7)
Correctional Facility ^b	18	(6.9)	21	(8.0)	16	(5.5)	19	(7.2)	39	(13.2)
Homeless ^a	36	(13.7)	39	(14.9)	45	(15.6)	32	(12.2)	35	(11.9)
Country of Birth										
Foreign Born ^c	109	(41.6)	147	(56.3)	134	(46.4)	137	(52.1)	172	(58.3)
Underlying Disease										
HIV infection, All Ages ^d	16	(6.1)	18	(6.9)	12	(4.2)	18	(6.8)	16	(5.4)
HIV infection, 25-44 Years Old ^d	10	(10.1)	13	(14.3)	8	(8.9)	12	(14.0)	12	(13.5)
Total Cases	262		261		289		263		295	

^aWithin one year prior to diagnosis of tuberculosis.

^bResidence at time of diagnosis.

^cIncludes persons born outside the United States and its territories.

^dTuberculosis cases with a reported positive HIV test result. The percent positive represents HIV co-infection among all verified TB cases, including those not tested for HIV infection.

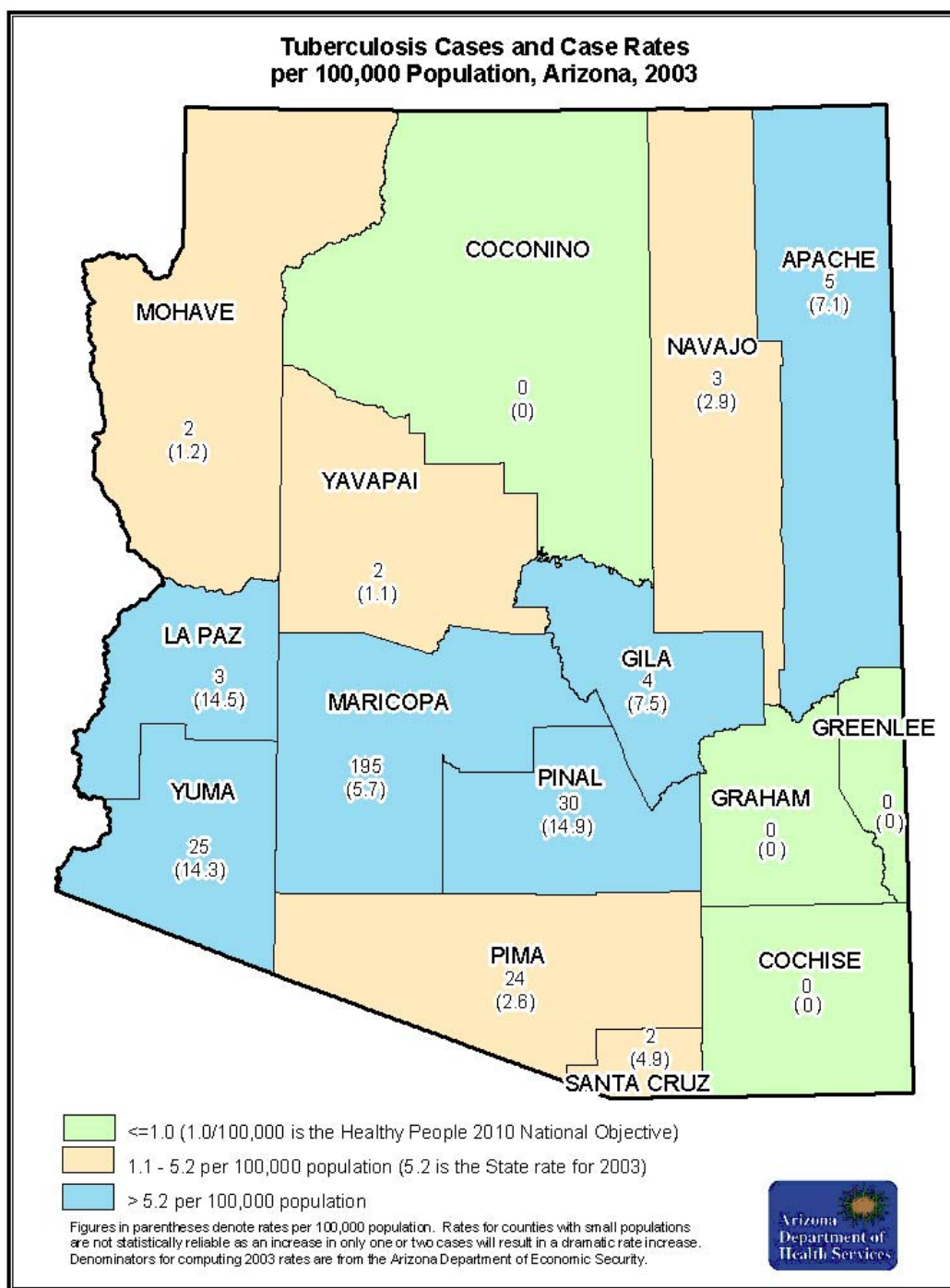


Figure 6. Tuberculosis Cases and Case Rates per 100,000 (in parentheses) by County, Arizona, 2003.

The *Tuberculosis Surveillance Report* is published annually by the Arizona Department of Health Services, Tuberculosis Control Section. All data are provisional. Report finalized on 5/3/2004 based on data available 4/13/2004.